

Cargo Helicopters Parts Marking Program



Just another Sling
Load

Cargo PMO Objective

To enable logistics transformation and knowledge enabled business processes by comprehensively and intelligently establishing uniqueness and marking of weapon system spare and repair parts.



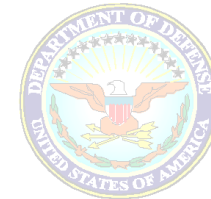
Establish the ability to manage components over the complete life cycle.



Policy History

- 29 Jul 2003** “Policy for Unique Identification (UID) of Tangible Items – New Equipment, Major Modifications, and Reprocurements of Equipment and Spares”, signed by the Acting Under Secretary of Defense (Acquisition, Technology and Logistics)
- 25 Nov 2003** Version 1.3 of policy
- 26 Nov 2003** Update – Clarification of Issues Raised
- 22 Dec 2003** Update – Issuing Agency Code for AI/DI use of CAGE
- 15 Dec 2003** OSD et al Teleconference allowing TS 21849 Text Element Identifiers

Department of Defense Guide to Uniquely Identifying Items



Assuring Valuation, Accountability and Control of Government Property

Version 1.3
November 25, 2003

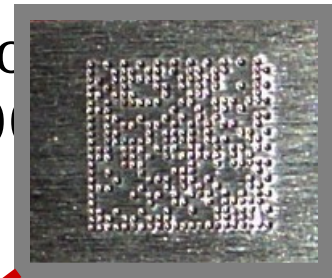
Office of the Principal Deputy Under Secretary of Defense
(Acquisition, Technology & Logistics)

[http://
www.acq.osd.mil/uid](http://www.acq.osd.mil/uid)

Collaborative Solution

Using a standard ISO “wrapper,” commercial and government formats can be used to construct the same data.

- ISO/IEC 15434 **Syntax** as standard for
 - TS 21849 **TEIs** (ATA SPEC 2000)
 - EAN.UCC AIs
 - MH 10.8.2 DIs



[>^R_SDD^G_SSPL194532636^G_SUCN1234^G_SPNR786
950^E_O^T

UID= 1945326361234

Interoperability across DoD

- Components cross service lines.
- Depots service weapon systems for multiple service customers.
- Information systems must feed common DoD registry.
- UID data elements.
 - Clear and unambiguous across enterprise.



Army SNT - DA Form 2410

COMPONENT REMOVAL AND REPAIR/OVERHAUL RECORD						REQUIREMENT CONTROL SYMBOL	
For use of this form, see DA PAM 738-751; the proponent agency is DCSLOG						CSGLD-1052(R3)	
SECTION I - IDENTIFICATION							
CONTROL NUMBER 624882		1. NOMENCLATURE Engine Gas Turbine		2. NSN 2840-01-070-1003		3. PART NUMBER 6035T00G01	
4. SERIAL NUMBER GEE306591		5. CAGE CODE 99207	6. NO. OF PREV O/Hs CC	7. TIME SINCE LAST INST (HRS) 350 0	8. TIME SINCE NEW (HRS) 2766 2769	9. TIME SINCE OVERHAUL (HRS) CC	10. FAILURE CODE 317 199
1. POS 1	12. HSF	13. METER HRS	14. WUC 0 A	15. COMPONENT CUMULATIVE COUNT/HOURS			
				a. LCF 1	b. LCF 2	c. TTI	d. OP HRS
16. APU SSN	17. APU HRS	18. APU SSO	19. VERSION	1 0 4 9	7 3 2 3	8 3 0	2 7 9
± 0 4 7				± 0 4 7	7 3 ± 7	8 ± 8	2 7 ± 6
SECTION II - REPAIR/OVERHAUL/GAIN							
20. REMOVED FROM (NOMEN NHA)			21. NSN (NHA)			22. PART NUMBER (NHA)	
23. SERIAL NUMBER (NHA)		24. HOURS (NHA) 1385		25. NHA CUMULATIVE COUNT/HOURS			
				CF 1	b. LCF 2	c. TTI	d. OP HOURS
26. APU START METER		27. APU HOUR METER					
28. HISTORY RECORDER SN ECD03595			29. HISTORY RECORDER READING				
				a. LCF 1	b. LCF 2	c. TTI	d. OP HOURS
				2 7	1 6 0 3	1 4 7	6 8 5
				± 5 9 7	± 5 9 7	± 3 5	6 8 2
30. ACFT MODEL UH-60A		31. ACFT S/N 8023426		32. MAINT LEVEL 0		34. UIC (This Action) WOWFAA	
39. DATE CHECKED 96185		40. PID AND TELEPHONE NUMBER AW0980 DSN 861-2361			41. UIC WOWFAA		
43. INSPECTION AND ACTION CODES				44. REASON FOR GAIN		47. ACT FAIL CODE D 317	
(A) SERV		E (E) REPAIR	(G) REBUILT			48. SRA/ESRA N	
(B) UNSERV	(D) REMFG	(F) O/HAUL					
REMARKS Total cumulative counts and hours calculated by WOWFAA due to history recorder failure.							

Serial Number

Part Number

CAGE Code

Navy SNT - NALCOMIS OMA

NALCOMIS OMA

File Window Help

Active Work Order Query

Work Order Update - Removed

ORG: WVA7

BUNO/SERNO: 164176

WUC/UNS: [00002NI] [1513500]

Mal Cd: 374

Pos Cd: RED

Buno/Serno: 164176

REMOVED

Cage: 07450

Part Number: 01-21551B42

Serno: 2163211

Date Removed: 17 JAN 2001

CDI Signature: []

Buttons: Cancel, Apply, Sort By

Ready | (0104 | User OTTA

MCH
00002N8 WA
00002N9 WA
00002NA WA
00002NB WA
00002ND WA
00002NE WA
00002NF WA
00002NH WA
00002NI WA

Serial Number

CAGE Code

Part Number



Air Force SNT - Form GO-81

AMC Graphical User Interface on LYNX - [G081 Session]

File View Connection Options Window Help

PA1 PA2 Send/Enter Disconnect Clear Screen Text Screen GUI Screen G081 Help

Screen 9021

MAMU9021 ON-LINE SICR PROGRAM

TRANSACTION S PASSWORD CEI MC0637D SERIAL NUMBER 000000938

PART NUMBER 2248000-41 NHA CEI MA0001D NHA SERIAL NUMBER 0001000193

LOCATION CODE DKFX AF ACCEPTANCE DATE 02289 CAGE CODE 98571 STATUS M

TOTAL HOURS 01791.9 TOTAL CYCLES TSOH 01783.7 CSOH

TOTAL ENGINE FLIGHTS 000000 TOTAL LANDINGS 000619 ID NUMBER

LAST OVERHAUL AGENCY DATE LAST OVERHAUL TSO LAST INSPECTION

DATE LAST OIL CHANGE DATE OIL SAMPLE TAKEN DATE INSTALL 02198

CONFIGURED ARTICLE C WUC/REFDES 3133RC001 MADAR BOLT # POSITION

DATE OF LAST STATUS CHANGE 02198 % OF EXTENDED LIFE BUILD INTVL

WARRANTY DATE WARRANTY INDICATOR N CONTRACT # CFE

ADJUST CYCLES BY (EX: 000012) ADJUST HOURS BY (EX: 00012.5)

VALID TRANSACTIONS: A-ADD, C-CHANGE, D-DELETE, S-SCAN, F-FIX LINKAGE PROBLEMS,
Y-ADD HRS/CYS TO ENG COMPONENTS, Z-SUBTRACT HRS/CYS FROM ENG COMPONENTS.
ALL DATES ARE JULIAN (POSITION YEAR AND 3 POSITION DAY).
ALL FIELDS USING HOURS ARE OF THE FORMAT 99999.9. YOU TYPE IN THE DECIMAL.
ADJUST CYCLES ARE HHHH FOR C17, ALL OTHERS ARE 9999999 WITH NO DECIMAL.

ACTIVITY ACCEPTED

Serial Number

Part Number

CAGE Code

Ready... | INS NUM CAPS SCRL R2,C14 | 21:40 Zulu

Start | Inbox - Microsoft ... | ATMGOV | AMC Portal - Nets... | Microsoft Outlook | AMC Graphical U... | 1:41 PM



DoD Policy Guidance

	UID Construct #1	UID Construct #2
Based on current enterprise configurations	If items are serialized within the Enterprise	If items are serialized within Part Number
UID is derived by concatenating the data elements IN ORDER:	Issuing Agency Code* Enterprise ID Serial Number	Issuing Agency Code* Enterprise ID Original Part Number Serial Number
Data Identified on Assets Not Part of the UID (Separate Identifier)	Current Part Number	Current Part Number

*The Issuing Agency Code (IAC) represents the registration authority that issued the enterprise identifier (e.g., Dun and Bradstreet, EAN.UCC). The IAC can be derived from the data qualifier for the enterprise identifier and does not need to be marked on the item.

DoD Unique Identification (UID)

Construct #1

- Serialized within enterprise
- UID comprises 2 data elements
 - ✓ Enterprise code number
 - ✓ Unique serial number



Construct #2

- Serialized within part number
- UID comprises 3 data elements



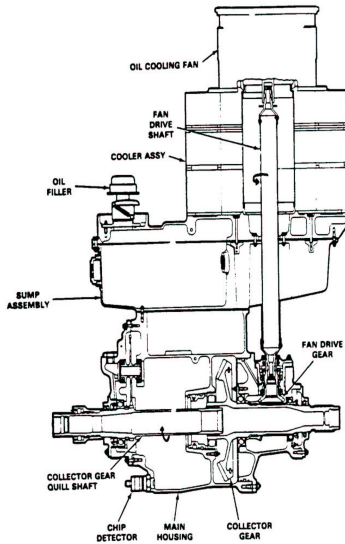
- ✓ Enterprise code

Semantics Definitions

- DI:** **Data Identifier** - ISO MH-10 marking standard
- 18S:** The data element that is made up of a serial number (unique within Enterprise ID) and an Enterprise ID.
- 17V:** Enterprise ID defined as CAGE code.
- S:** Serial number assigned by the enterprise ID
- 1P:** Original part number assigned by the enterprise ID
- 30P:** Current part number.
-
- TEI:** **Text Element Identifier** - ISO TS21849 marking standard.
- MFR:** Original Enterprise ID defined as manufacturer (CAGE).
- SER:** Serial number that is unique within the MFR.
- SPL:** Supplier Code - The Enterprise ID of an agency marking a part after original manufacturer.
- UCN:** Unique Component ID Number - A serial number unique within the SPL.
- PNR:** Current part number.



Cargo PMO Example of Marking



CH-47 Combiner Transmission

NSN

P/N

- 1615-01-397-9921
- 145D5300-20
- 1615-01-315-9365
- 145D5300-20
- 1615-01-464-3974
- 145D5300-16
- 1615-01-315-4069
- 145D5300-11
- 1615-01-310-4980
- 145D5300-11
- 1615-01-310-4981
- 145D5300-11

Marking Scenario

Case	Current Part Number	Serial Number	Part Marking
1	145D5300-20	02142004	145D5300-9 New Part
2	145D5300-11	CH05681	1615-01-216-3828 Legacy Part
3	145D5300-20	CH05681	145D5300-3 Modified Legacy Part



Combiner Transmission Construct #1

DIIs

TEIs

2 Data Elements

(18S) 7727202152004


Combining Transmission
(30P) 145D5300-20


Case #1

MFR 77272

SER 02152004


Combining Transmission
PNR 145D5300-20





3 Data Elements



2 Data Elements

(18S) 58H12CH05681


Combining Transmission
(30P) 145D5300-11


Case #2

SPL 58H12

UCN CH05681


Combining Transmission
PNR 145D5300-11


3 Data Elements

2 Data Elements

(18S) 58H12CH05681


Combining Transmission
(30P) 145D5300-20


Case #3

SPL 58H12

UCN CH05681


Combining Transmission
PNR 145D5300-20


3 Data Elements



Combiner Transmission Construct #2

DIs

(17V) 77272

(S) 02142004

(1P) 145D5300-20


Combining Transmission
(30P) 145D5300-20


(17V) 58H12

(S) CH05681

(1P) 145D5300-11


Combining Transmission
(30P) 145D5300-11


(17V) 58H12

(S) CH05681

(1P) 145D5300-11


Combining Transmission
(30P) 145D5300-20


4 Data Elements

4 Data Elements

4 Data Elements

Case #1

Case #2

Case #3

TEIs do not support Construct #2



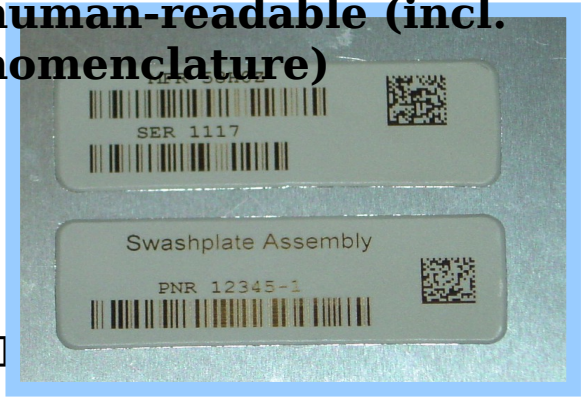
PM Cargo UID Program -

Construct 1

- Simpler, 2-data element configuration for UID
- Only current part number on label
- Interoperable with current Information System.

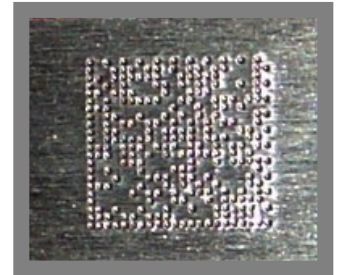
- Real-estate permitting:
 - Linear machine-readable
 - 2D machine-readable
 - Human-readable
 - UID on one label
 - Current part number on a second

Linear and 2D machine-readable and human-readable (incl. nomenclature)



- Limited real-estate:
 - 2D machine-readable only

2D machine-readable only



Cargo PMO Path Forward



List Development

- Prior to DoD UID Policy, Cargo PMO planned to mark RECAP/DLR components with machine-readable marks as part of CPME vision
- DoD UID Policy came out requiring that all new production items be marked
- To ensure common marking scheme on both legacy and new parts, Cargo PMO expanded parts marking list to include parts meeting DoD UID criteria
 - Controlled Inventory (incl 2410-tracked items)
 - Over \$5000
- Added CSIs
- Facilitated team assembled to validate list of parts to be marked

Parts Marking Strategies

- Opportunistic Parts Marking
 - Linked to program opportunities or long term maintenance
- Vendor Marked at Source
 - Marks applied by vendor during manufacturing/overhaul process
- Intercept Gate Parts Marking
 - Intercept gates set up within the supply chain
- Seek and Mark Parts Marking
 - Interest in single type component world-wide



Summary - Current Status

- Initial list of “parts to mark” developed
- RESET subset established (985 part numbers, 499 parts)
- 187 part numbers in AWR approval cycle
- Parts marking process documentation in development
- Marked initial RESET aircraft at Ft. Campbell
 - 11 parts on A/C 8424154
 - 11 parts on A/C 8900130



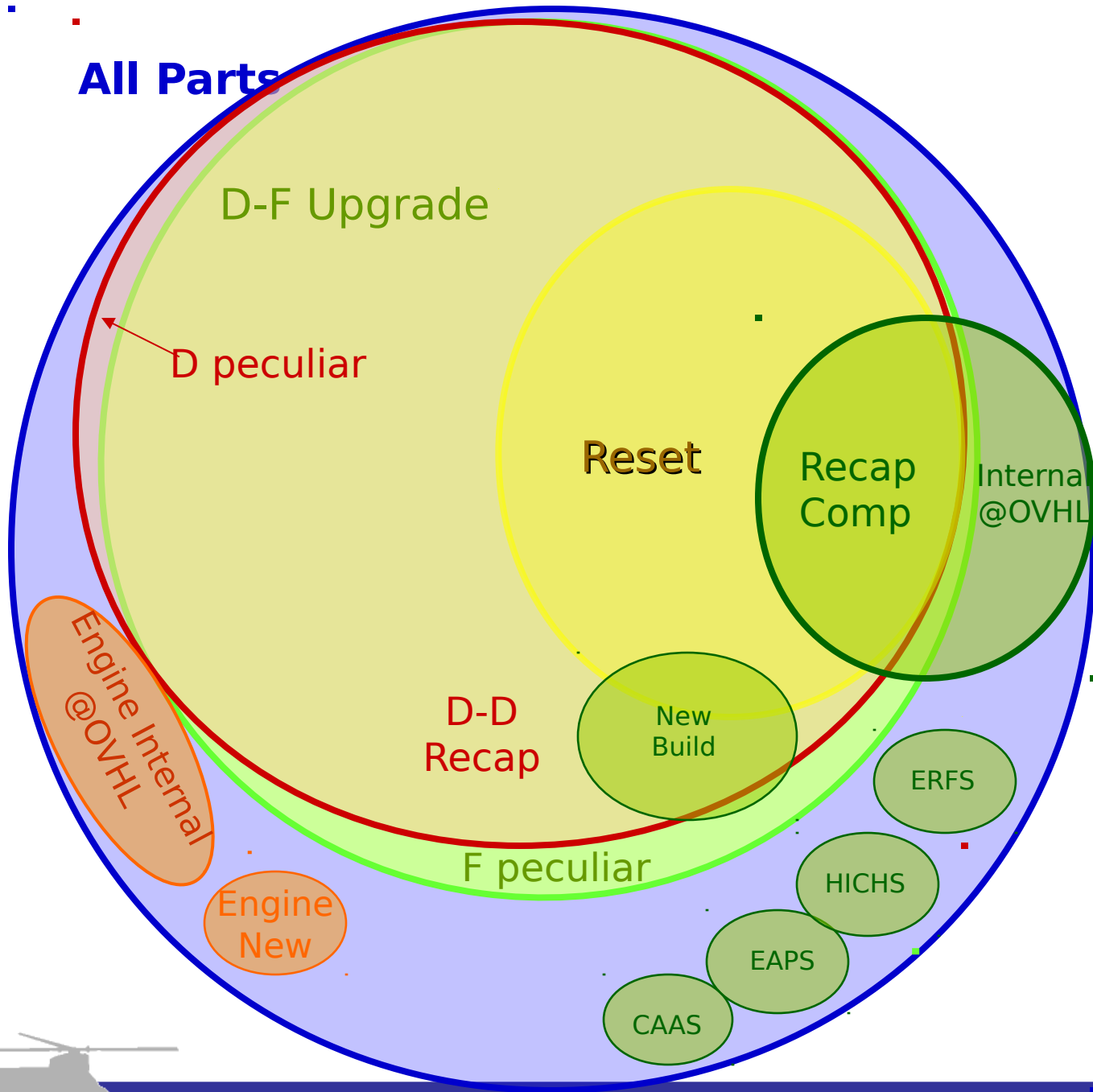
Back-up Charts



Engineering Analysis

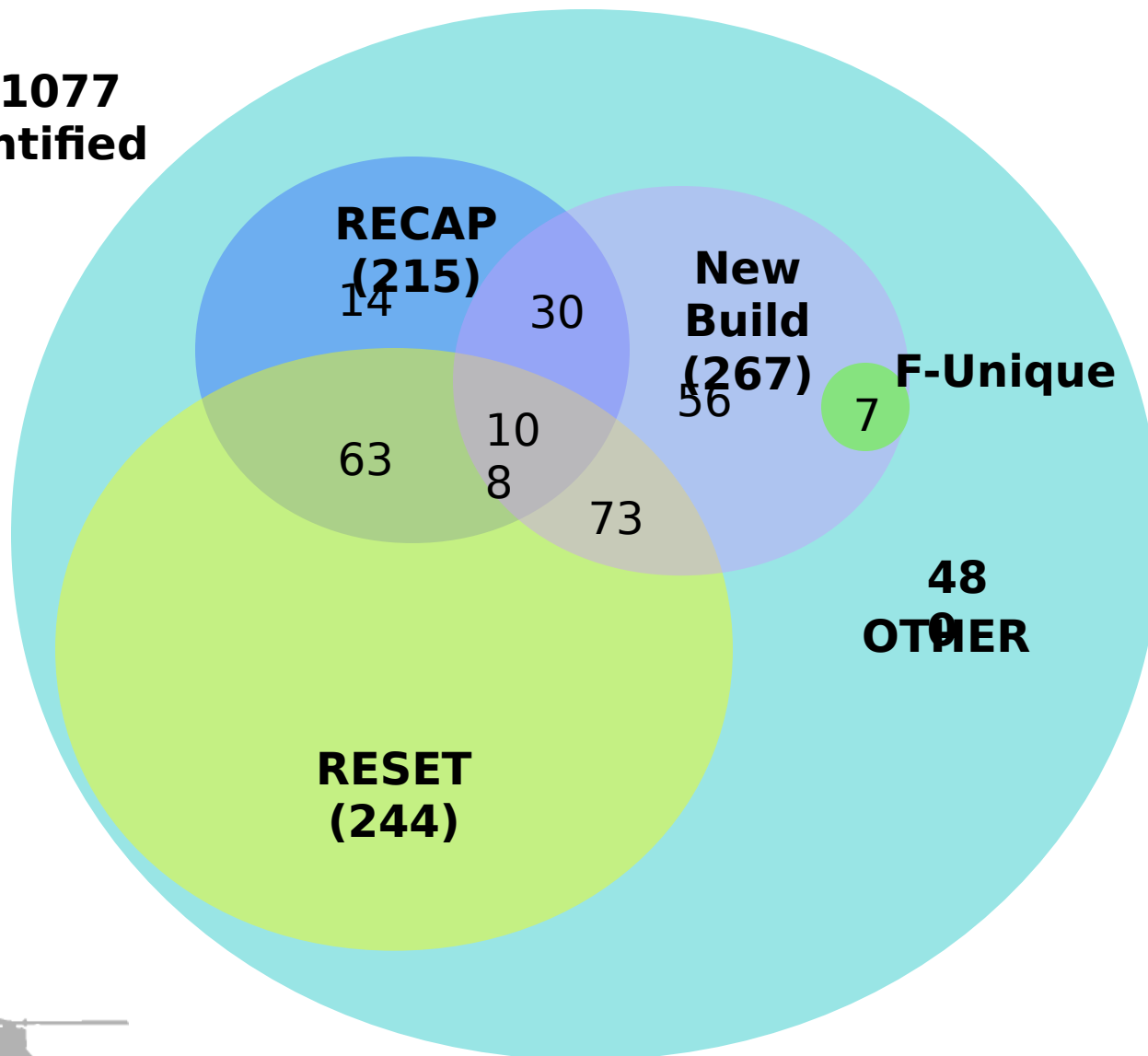
- Determine location for mark on each part
- Determine type of mark on each part
 - Label
 - Direct Mark
- Validate location and type of mark for each part
 - Ensure *labels* are not in contact with aircraft fluids that will degrade adhesive
 - Ensure *direct marks* do not degrade parts
- Obtain Airworthiness Release (AWR)
- Incorporate approved marking instructions into appropriate documentation (field procedures, MEOs, etc.)

All Parts



Geographic Marking Breakdown

To Date: 1077
Parts Identified
to Mark



Opportunistic Parts Marking

- On-Aircraft
 - RESET (Aircraft coming back from SWA)
 - CH-47F Remanufacture Program (Boeing)
 - Recapitalization (CCAD)

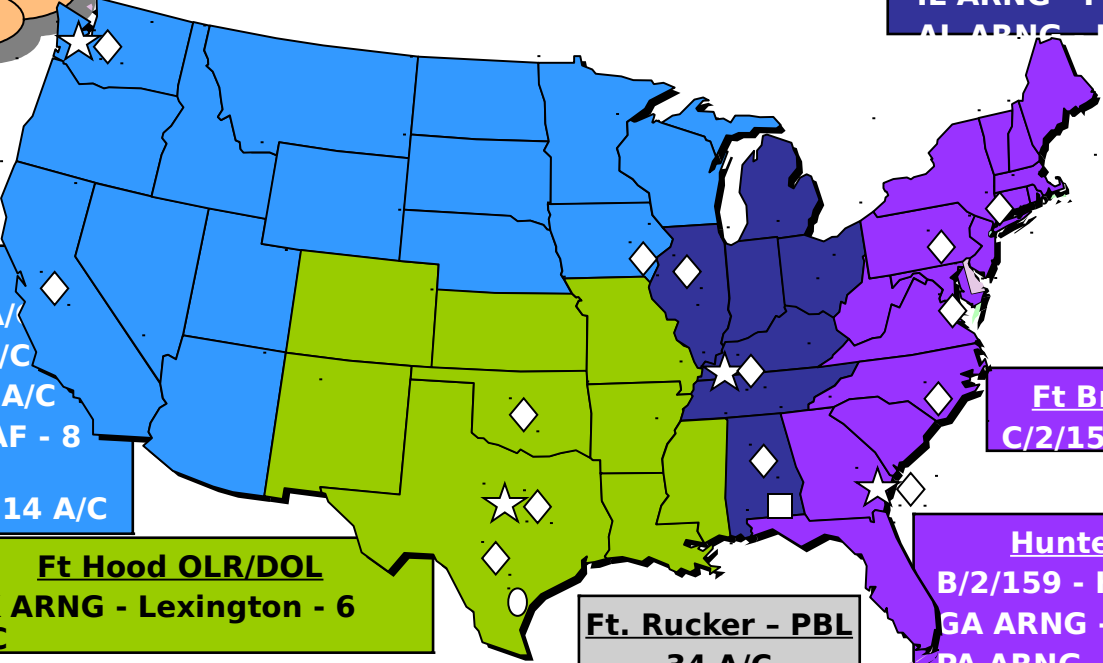
- Components/Parts
 - At Vendor / OEM
 - During Depot Overhaul
 - At Supply Chain Gates



OPM Sites

Ft Campbell OLR/ALMD
 101st - Ft Campbell - 49 A/C
 IL ARNG - Peoria - 7 A/C
 AL ARNG - Birmingham - 7

CONUS



Ft Lewis OLR
 WA USAR - Ft Lewis - 11A/
 CA ARNG - Stockton - 8 A/C
 IA ARNG - Davenport - 7 A/C
 HI USARPAC - Wheeler AAF - 8 A/C
 HI ARNG - Wheeler AAF - 14 A/C

Ft Bragg OLR/DOL
 C/2/159 - Ft Bragg - 8

Ft Hood OLR/DOL
 OK ARNG - Lexington - 6 A/C

Ft. Rucker - PBL
 34 A/C

Hunter AAF OLR/DOL
 B/2/159 - Hunter AAF - 14 A/C
 GA ARNG - Hunter AAF - 7 A/C
 PA ARNG - Annville - 7 A/C
 CT ARNG - Windsor Locks - 7 A/C

TX ARNG - Grand Prairie - 8 A/C

Corpus Christi Army Depot
 RECAP 54 A/C

Germany OLR
 F/159 - Geiblestadt - 7 A/C
 F/159 - Coleman BKS - 7 A/C

OCONUS

- ☆ Governing RESET SITE
- ◇ Unit RESET SITE
- RECAP Site
- PBL Site



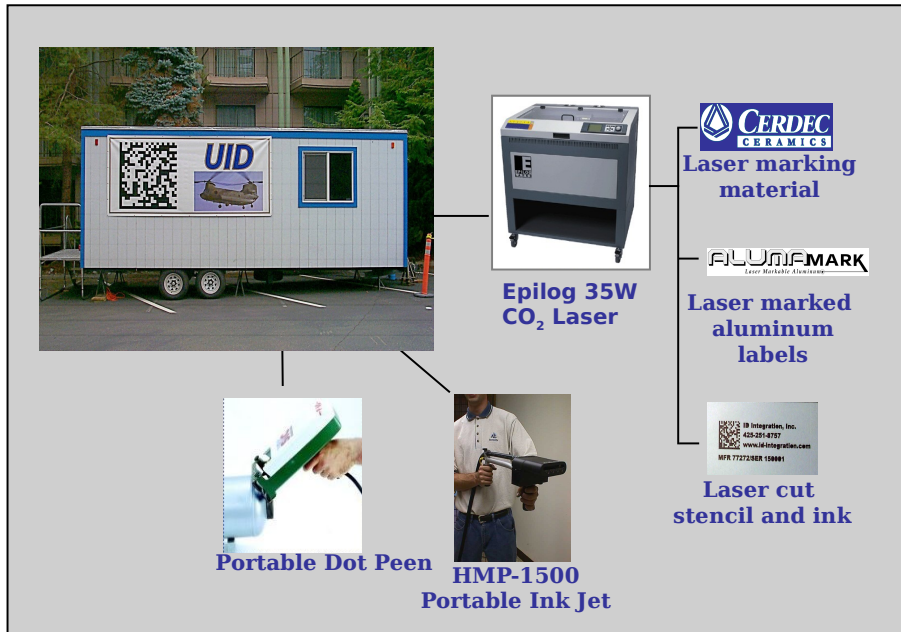
OPM Mobile Package

- Provide on-site capability to mark approved parts and assemblies
- Dedicated equipment usage personnel
 - Provided by PM Cargo for 1 year
 - Training provided by PM Cargo for long-term

Labels



Direct Marking



Marking Instructions

Near Term (Resulting from Parts Marking Workshop)

- One-page marking instruction per part
 - Provides cleaning instructions
 - Provides sketch with location of mark on part
 - Provides method of marking (label, laser-etch, etc.)
- Parts Marking MEOs included in DMWRs

Long Term

- Electronic instructions developed (E-cards)



Path Ahead

- Refine total parts list (RCM Team)
- Complete initial instructions for RESET
- Field additional OPM equipment
- Complete engineering analysis on total parts list
- Obtain approval to mark remaining parts
- Mark parts! 😊



Lessons Learned

- Develop initial list from most current platform data (RPSTL, PMR, etc.) and build from there.
- Ensure that all known alternate part numbers are included on list.
- Determine all organizations affected and gain their participation from process initiation.
- Determine approach for marking instructions that will accommodate all potential marking enterprises.



Why Mark

To reduce the maintenance burden on the s

- Providing consistency in data collection/managem
- Ensuring all maintenance-, transportation-, and supply-related processes are captured electronically
- Providing intelligent data for knowledge-enabled l



Equipment Deployment Schedule

Task Name	Duration	Start	Finish	December	January	February	March	April	May	June	July
Ft. Campbell, Kentucky	14 days	Thu 2/5/04	Tue 2/24/04			█					
Fort Rucker, Alabama	69 days	Thu 2/5/04	Tue 5/11/04			█	█				
Fort Stewart, Georgia	69 days	Thu 2/5/04	Tue 5/11/04			█	█				
Fort Hood, Texas	69 days	Thu 2/5/04	Tue 5/11/04			█	█				
Fort Lewis, Washington	69 days	Thu 2/5/04	Tue 5/11/04			█	█				
Corpus Christi Army Depot, Texas	117 days	Thu 2/5/04	Fri 7/16/04			█	█	█	█		



Event Timeline (Schedule)

Task Name	Duration	Start	Finish	December	January	February	March	April	May	June
Mark Parts in the Field (Ft. Campbell)	30 days	Mon 3/8/04	Fri 4/16/04							
Deliver OPM Mobile Package	21 days	Thu 2/5/04	Thu 3/4/04							
Obtain Power/Telecom/Network Capability	14 days	Thu 2/5/04	Tue 2/24/04							
Complete Parts List Development	7 days	Thu 2/5/04	Fri 2/13/04							
Complete Marking Instructions for Approved Part	7 days	Thu 2/5/04	Fri 2/13/04							
Develop Marking Instructions for Add'l Parts	12 days	Thu 2/5/04	Fri 2/20/04							
Obtain Marking Approval for Add'l Parts	7 days	Tue 2/10/04	Wed 2/18/04							
Coordinate OLR Rqmts	7 days	Wed 2/18/04	Thu 2/26/04							
Provide OPM Mobile Pkg Operator	1 day?	Fri 3/5/04	Fri 3/5/04							



DoD UID Collaborative Solution **Interoperability**

1. TS 21849: TEI:s

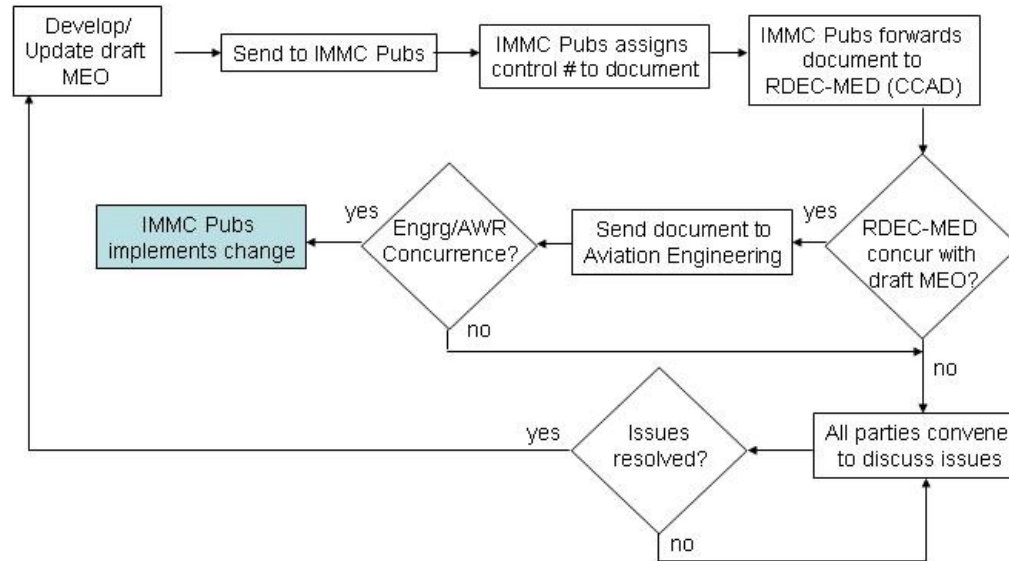
[>]^R_S*DD***^G_S**SPL194532636**^G_S**UCN1234**^G_S**PNR7869**
50^E**o**_T**

2. EAN.UCC: Application Identifiers

[>]^R_S05**^G_S**xxx194532636**^G_S**011234**^G_S**21786950**^E**o**_T**

3. MH 10.8.2: Data Identifiers

MEO Approval Process



Opportunity to Implement LEAN?



Combiner Transmission Construct #2

DIs

4 Data Elements

(17V) 77272
[Barcode]
(S) 02142004
[Barcode]
(1P) 145D5300-20
[Barcode]

Combining Transmission
(30P) 145D5300-20
[Barcode]

Case #1

4 Data Elements

(17V) 58H12
[Barcode]
(S) CH05681
[Barcode]
(1P) 145D5300-11
[Barcode]

Combining Transmission
(30P) 145D5300-11
[Barcode]

Case #2

4 Data Elements

(17V) 58H12
[Barcode]
(S) CH05681
[Barcode]
(1P) 145D5300-11
[Barcode]

Combining Transmission
(30P) 145D5300-20
[Barcode]

Case #3

TEIs do not support Construct #2



Crew Overhead Door Construct #1

DI

TEIs

2 Data Elements

(18S) 7727202152004
 

Crew Overhead Door
(30P) 114S1621-29
 

Case #1

MFR 77272
 
SER 02152004

Crew Overhead Door
PNR 114S1621-29
 

3 Data Elements

2 Data Elements

(18S) 58H12CH0515N
 

Crew Overhead Door
(30P) 114S1621-27
 

Case #2

SPL 58H12
 
UCN CH0516N

Crew Overhead Door
PNR 114S1621-27
 



3 Data Elements

2 Data Elements

(18S) 58H12CH0515N
 

Crew Overhead Door
(30P) 114S1621-29
 

Case #3

SPL 58H12
 
UCN CH0516N

Crew Overhead Door
PNR 114S1621-29
 

3 Data Elements





UID Decision Criteria



Which Items Require a Unique Identifier (UID)?

